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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/736,323	12/15/2000	Anders Lundqvist	027557-077	8967

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EXAMINER	
FOX, BRYAN J	

ART UNIT	PAPER NUMBER
2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/736,323	LUNDQVIST ET AL.	
	Examiner	Art Unit	
	Bryan J. Fox	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,11,14-17,22 and 27-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6,11,14-17,22 and 27-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3, 5, 6, 11, 14, 16, 17, 22 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi (US006295452B1) in view of Barnett et al (US005509051A).

Regarding claim 1, Choi discloses a system that supports soft handoff between mobile switching stations in a mobile communication system (see column 5, lines 26-51), which reads on the claimed, "mobile cellular telecommunications network employing macro-diversity, wherein a mobile station can establish a plurality of simultaneous radio links with a plurality of digital cells in the network." The network includes a plurality of base station controllers, switching stations, and base stations (see column 5, lines 26-51 and figures 3 and 4), which reads on the claimed, "means for

dividing the plurality of digital cells of the network into a plurality of groups, said plurality of groups including: a first groups of geographically related digital cells, wherein the mobile station has an established radio link with at least one digital cell in the first group; and a second group of geographically related digital cells which do not overlay or underlay the first group of cells, wherein the mobile station does not have an established radio link with any of the digital cells in the second group." Further, soft handover between mobile switching stations involves more resources, i.e. the local switching stations 120a-120n, the inter network CCIN and the MCIN (see column 5, line 52 – column 6, line 4 and figure 4), which reads on the claimed, "wherein the first group of geographically related digital cells has a lower cost associated for establishing a radio link than the second group of geographically related digital cells." Choi fails to expressly disclose increasing the probability that the mobile station will establish a macro-diversity link with a digital cell in the first geographical area rather than a digital cell in the second geographical area including different link quality thresholds.

In a similar field of endeavor, Barnett et al disclose a system where each cell has a configured cell measurement class where neighboring cells are included in a selected measurement list in accordance with operating criteria of the serving cell and the classification of the respective neighboring cell and prior to sorting the handoff candidate cells, one or more signal strength increments are added to the normalized neighboring cell's RF signal strength measurement. The number of signal strength increments added to the normalized neighboring cells is computed by subtracting the neighboring cells priority level from the maximum priority level and multiplying the

difference by the dBm assigned to each priority block level (see column 6, line 50 – column 7, line 22), which reads on the claimed, "responsive to the lower cost associated with the first group, means for increasing the probability that the mobile station will establish a macro-diversity link with a digital cell in the first geographical area rather than a digital cell in the second geographical area, said means for increasing the probability including: means for establishing the macro-diversity radio link between the mobile station and the digital cell in the first group upon meeting a first link quality threshold; and means for establishing the macro-diversity radio link between the mobile station and the digital cell in the second group only upon meeting a second link quality threshold that is greater than the first link quality threshold."

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Choi with Barnett et al to include the above prioritization with different thresholds in order to delays and system congestion as suggested by Barnett et al (see column 1, line 48 – column 2, line 4).

Regarding claim 27, Choi discloses a system that supports soft handoff between mobile switching stations in a mobile communication system (see column 5, lines 26-51), which reads on the claimed, "mobile cellular telecommunications network employing macro-diversity, wherein a mobile station can establish a plurality of simultaneous radio links with a plurality of digital cells in the network." The network includes a plurality of base station controllers, switching stations, and base stations (see column 5, lines 26-51 and figures 3 and 4), which reads on the claimed, "means for dividing the plurality of digital cells of the network into a plurality of groups, said plurality

of groups including: a first group of digital cells controlled by a first radio network controllers, wherein the mobile station has an established radio link with at least one digital cell in the first group; and a second group of cells controlled by a second radio network controller which do not overlay or underlay the first group of cells, wherein the mobile station does not have an established radio link with any of the digital cells in the second group." Further, soft handover between mobile switching stations involves more resources, i.e. the local switching stations 120a-120n, the inter network CCIN and the MCIN (see column 5, line 52 – column 6, line 4 and figure 4), which reads on the claimed, "wherein the first group of geographically related digital cells has a lower cost associated for establishing a radio link than the second group of geographically related digital cells." Choi fails to expressly disclose increasing the probability that the mobile station will establish a macro-diversity link with a digital cell in the first geographical area rather than a digital cell in the second geographical area including different link quality thresholds.

In a similar field of endeavor, Barnett et al disclose a system where each cell has a configured cell measurement class where neighboring cells are included in a selected measurement list in accordance with operating criteria of the serving cell and the classification of the respective neighboring cell and prior to sorting the handoff candidate cells, one or more signal strength increments are added to the normalized neighboring cell's RF signal strength measurement. The number of signal strength increments added to the normalized neighboring cells is computed by subtracting the neighboring cells priority level from the maximum priority level and multiplying the

difference by the dBm assigned to each priority block level (see column 6, line 50 – column 7, line 22), which reads on the claimed, "responsive to the lower cost associated with the first group, means for increasing the probability that the mobile station will establish a macro-diversity link with a digital cell in the first geographical area rather than a digital cell in the second geographical area, said means for increasing the probability including: means for establishing the macro-diversity radio link between the mobile station and the digital cell in the first group upon meeting a first link quality threshold; and means for establishing the macro-diversity radio link between the mobile station and the digital cell in the second group only upon meeting a second link quality threshold that is greater than the first link quality threshold."

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Choi with Barnett et al to include the above prioritization with different thresholds in order to delays and system congestion as suggested by Barnett et al (see column 1, line 48 – column 2, line 4).

Regarding claim 28, Choi discloses a system that supports soft handoff between mobile switching stations in a mobile communication system (see column 5, lines 26-51), which reads on the claimed, "method of establishing macro-diversity radio links in a mobile cellular telecommunications network, wherein a mobile station can establish a plurality of simultaneous radio links with a plurality of digital cells in the network." The network includes a plurality of base station controllers, switching stations, and base stations (see column 5, lines 26-51 and figures 3 and 4), which reads on the claimed, "dividing the plurality of digital cells of the network into a plurality of groups, said plurality

of groups including: a first groups of geographically related digital cells, wherein the mobile station has an established radio link with at least one digital cell in the first group; and a second group of geographically related digital cells which do not overlay or underlay the first group of cells, wherein the mobile station does not have an established radio link with any of the digital cells in the second group." Further, soft handover between mobile switching stations involves more resources, i.e. the local switching stations 120a-120n, the inter network CCIN and the MCIN (see column 5, line 52 – column 6, line 4 and figure 4), which reads on the claimed, "wherein the first group of geographically related digital cells has a lower cost associated for establishing a radio link than the second group of geographically related digital cells." Choi fails to expressly disclose increasing the probability that the mobile station will establish a macro-diversity link with a digital cell in the first geographical area rather than a digital cell in the second geographical area including different link quality thresholds.

In a similar field of endeavor, Barnett et al disclose a system where each cell has a configured cell measurement class where neighboring cells are included in a selected measurement list in accordance with operating criteria of the serving cell and the classification of the respective neighboring cell and prior to sorting the handoff candidate cells, one or more signal strength increments are added to the normalized neighboring cell's RF signal strength measurement. The number of signal strength increments added to the normalized neighboring cells is computed by subtracting the neighboring cells priority level from the maximum priority level and multiplying the difference by the dBm assigned to each priority block level (see column 6, line 50 –

column 7, line 22), which reads on the claimed, "responsive to the lower cost associated with the first group, controlling the selection of macro-diversity cells to increase the probability that the mobile station will establish a macro-diversity link with a digital cell in the first group of digital cells rather than a digital cell in the second group, said controlling step including: establishing the macro-diversity radio link between the mobile station and the digital cell in the first group upon meeting a first link quality threshold; and establishing the macro-diversity radio link between the mobile station and the digital cell in the second group only upon meeting a second link quality threshold that is greater than the first link quality threshold."

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Choi with Barnett et al to include the above prioritization with different thresholds in order to delays and system congestion as suggested by Barnett et al (see column 1, line 48 – column 2, line 4).

Regarding claim 29, Choi discloses a system that supports soft handoff between mobile switching stations in a mobile communication system (see column 5, lines 26-51), which reads on the claimed, "method of establishing macro-diversity radio links in a mobile cellular telecommunications network, wherein a mobile station can establish a plurality of simultaneous radio links with a plurality of digital cells in the network." The network includes a plurality of base station controllers, switching stations, and base stations (see column 5, lines 26-51 and figures 3 and 4), which reads on the claimed, "dividing the plurality of digital cells of the network into a plurality of groups, said plurality of groups including: a first group digital cells controlled by a first radio network

controller, wherein the mobile station has an established radio link with at least one digital cell in the first group; and a second group of digital cells controlled by a second radio network controller, wherein the second group of digital cells does not overlay or underlay the first group of cells, and the mobile station does not have an established radio link with any of the digital cells in the second group." Further, soft handover between mobile switching stations involves more resources, i.e. the local switching stations 120a-120n, the inter network CCIN and the MCIN (see column 5, line 52 – column 6, line 4 and figure 4), which reads on the claimed, "wherein the first group of digital cells has a lower cost associated for establishing a radio link than the second group of digital cells." Choi fails to expressly disclose increasing the probability that the mobile station will establish a macro-diversity link with a digital cell in the first geographical area rather than a digital cell in the second geographical area including different link quality thresholds.

In a similar field of endeavor, Barnett et al disclose a system where each cell has a configured cell measurement class where neighboring cells are included in a selected measurement list in accordance with operating criteria of the serving cell and the classification of the respective neighboring cell and prior to sorting the handoff candidate cells, one or more signal strength increments are added to the normalized neighboring cell's RF signal strength measurement. The number of signal strength increments added to the normalized neighboring cells is computed by subtracting the neighboring cells priority level from the maximum priority level and multiplying the difference by the dBm assigned to each priority block level (see column 6, line 50 –

column 7, line 22), which reads on the claimed, "responsive to the lower cost associated with the first group, controlling the selection of macro-diversity cells to increase the probability that the mobile station will establish a macro-diversity link with a digital cell in the first group of digital cells rather than a digital cell in the second group, said controlling step including: establishing the macro-diversity radio link between the mobile station and the digital cell in the first group upon meeting a first link quality threshold; and establishing the macro-diversity radio link between the mobile station and the digital cell in the second group only upon meeting a second link quality threshold that is greater than the first link quality threshold."

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Choi with Barnett et al to include the above prioritization with different thresholds in order to delays and system congestion as suggested by Barnett et al (see column 1, line 48 – column 2, line 4).

Regarding claim 3, as applied to claim 1 above, the combination of Choi and Barnett discloses the quality levels are signal strengths (see Barnett et al column 6, line 50 – column 7, line 22), which reads on the claimed, "the first and second link quality thresholds are required signal quality levels."

Regarding claim 5, as applied to claim 1 above, the combination of Choi and Barnett et al discloses the network includes a plurality of base station controllers, switching stations, and base stations (see Choi column 5, lines 26-51 and figures 3 and 4), which reads on the claimed, "a plurality of layers of groups are defined, such that each digital cell is in one group within each layer."

Regarding claim 6, disclose the network includes a plurality of base station controllers, switching stations, and base stations (see Choi column 5, lines 26-51 and figures 3 and 4), which reads on the claimed, "digital cells associated with one base station are considered to be in the same group."

Regarding claim 11, the combination of Choi and Barnett et al discloses the respective mobile switching stations are provided with a center code division multiplexing access inter network (see column 6, lines 18-42), which reads on the claimed, "the network is a Code Division Multiple Access Network."

Regarding claim 14, as applied to claim 28 above, the combination of Choi and Barnett discloses the quality levels are signal strengths (see Barnett et al column 6, line 50 – column 7, line 22), which reads on the claimed, "the first and second link quality thresholds are required signal quality levels."

Regarding claim 16, as applied to claim 28 above, the combination of Choi and Barnett et al discloses the network includes a plurality of base station controllers, switching stations, and base stations (see Choi column 5, lines 26-51 and figures 3 and 4), which reads on the claimed, "a plurality of layers of groups are defined, such that each digital cell is in one group within each layer."

Regarding claim 17, the combination of Choi and Barnett et al discloses the network includes a plurality of base station controllers, switching stations, and base stations (see Choi column 5, lines 26-51 and figures 3 and 4), which reads on the claimed, "digital cells associated with one base station are considered to be in the same group."

Regarding claim 22, the combination of Choi and Barnett et al discloses the respective mobile switching stations are provided with a center code division multiplexing access inter network (see column 6, lines 18-42), which reads on the claimed, "the network is a Code Division Multiple Access Network."

Claims 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi in view of Barnett et al as applied to claims 1 and 28 above, and further in view of Achour et al (WO 01/03464).

Regarding claims 4 and 15, the combination of Choi and Barnett et al fails to disclose the quality threshold relates to a longer time period for which a required signal quality level is satisfied.

In a similar field of endeavor, Achour discloses a threshold for a certain amount of time (see e.g. figure 5), which reads on the claimed, "the quality threshold relates to a longer time period for which a required signals quality level is satisfied."

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Choi and Barnett et al with Achour et al to include the above threshold in conjunction with a time period in order to increase the performance of wireless communication devices located near the edge of a cell as suggested by Achour et al (see column 1, lines 32-50).

Response to Arguments

Applicant's arguments filed February 21, 2007 have been fully considered but they are not persuasive.

The Applicant argues the combination of Choi and Barnett et al fails to disclose establishing two groups, each having different costs and responsive to these costs, a higher probability is provided for establishing a macro-diversity radio link with the cell in the lower cost group. The Examiner respectfully disagrees. As discussed above, Choi discloses soft handover between mobile switching stations involves more resources, i.e. the local switching stations 120a-120n, the inter network CCIN and the MCIN (see column 5, line 52 – column 6, line 4 and figure 4). This is a different cost. The resultant combination of Choi and Barnett et al discloses responsive to these costs, a higher probability is provided for establishing a macro-diversity radio link with the cell in the lower cost group (see rejection of claim 1 above).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The Applicant makes similar arguments with respect to the remainder of the claims, however, for the same reasons outlined above, the Examiner respectfully disagrees.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan J. Fox whose telephone number is (571) 272-7908. The examiner can normally be reached on Monday through Friday 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles N. Appiah can be reached on (571) 272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bryan Fox
May 7, 2007

CHARLES N. APPIAH
SUPERVISORY PATENT EXAMINER